

1. A semiconductor device comprising:
a first insulation film provided above a
semiconductor substrate;

a wiring layer formed on the conductive film so as
to have a space region between the wiring layer and at
10 least one sidewall of the groove section.

15 3. The semiconductor device according to claim 1,
further comprising a second insulation film formed
above the space region, the second insulation film
being different from the first insulation film.

5. A semiconductor device comprising:
25 a first insulation film provided above a
semiconductor substrate;

a wiring layer buried in the first insulation

a conductive film provided at least on a bottom of the wiring layer; and

a fourth insulation film formed on at least one side of the wiring layer, the fourth insulation film being different from the first insulation film.

6. The semiconductor device according to claim 5, wherein the conductive film is barrier metal and has resistivity that is higher than that of the wiring layer.

7. A semiconductor device comprising:
an insulation film provided above a semiconductor
substrate;

a wiring layer buried in the insulation film;
a first conductive film provided at least on a
bottom of the wiring layer; and

a second conductive film formed on at least one side of the wiring layer.

8. The semiconductor device according to claim 7, wherein the first conductive film is barrier metal and has resistivity that is higher than that of the wiring layer.

9. The semiconductor device according to claim 7, wherein the second conductive film has resistivity that is almost equal to that of the wiring layer.

10. A semiconductor device comprising:
a first insulation film provided above

forming a groove section in a first insulation film provided above a semiconductor substrate;

forming a buried wiring layer in the groove section with the first conductive film interposed therebetween; and

17. The method according to claim 16, wherein the first conductive film is barrier metal and has resistivity that is higher than that of the wiring layer.

19. The method according to claim 16, wherein in the step of forming the wiring layer, the first conductive film and the wiring layer are flattened such that top surfaces of the first conductive film and the wiring layer are almost flush with a top surface of

20. The method according to claim 16, further comprising a step of forming a second insulation film on the first insulation film after the step of forming the space region.

22. The method according to claim 16, further comprising a step of forming a third insulation film on a sidewall portion of the groove section after the step of forming the groove section in the first insulation film.

24. The method according to claim 23, wherein the fourth insulation film is good at being buried in the space region.

26. The method according to claim 25, wherein the second conductive film has resistivity that is almost equal to that of the wiring layer.

27. A method of manufacturing a semiconductor device, comprising the steps of:

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forming a contact plug between the two groove sections with a fifth insulation film interposed therebetween.

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34. The method according to claim 33, wherein the fifth insulation film is formed on a sidewall portion of each of the two groove sections after the step of

35. The method according to claim 33, wherein the fifth insulation film is formed on at least one sidewall portion of each of the two groove sections after the step of forming the two groove sections.

36. The method according to claim 35, wherein a space region is provided between the fifth insulation film and the wiring layer.

37. The method according to claim 33, wherein
10 the first conductive film is barrier metal and has
resistivity that is higher than that of the wiring
layer.

38. The method according to claim 33, wherein the wiring layer is selectively etched such that a level of a top surface of the wiring layer is equal to or lower than that of a top surface of the first insulation film.

39. The method according to claim 38, wherein the wiring layer is a bit line.

20 40. The method according to claim 33, wherein the
contact plug is formed in self-alignment with the fifth
insulation film.

41. The method according to claim 33, wherein
the contact plug includes barrier metal of a third
conductive film and a storage node contact of a fourth
conductive film.